LIST OF CONTENTS

NUMBER 1

W. Kyle Anderson and **Daryl L. Bonhaus** — 1 — An implicit upwind algorithm for computing turbulent flows on unstructured grids

H. Ma and **D. W. Ruth** — 23 — A new scheme for vorticity computations near a sharp corner

D. Lee and **C. L. Yeh** — 39 — A hybrid adaptive gridding procedure for three-dimensional flow problems

R. Bartels and **A. P. Rothmayer** — 55 — An efficient interacting boundary layer method for supersonic flow in the transonic regime

Spyros A. Kinnas and **Ching-Yeh Hsin** — 63 — The local error of a low-order boundary element method at the trailing edge of a hydrofoil and its effect on the global solution

P. A. Jacobs — 77 — Numerical simulation of transient hypervelocity flow in an expansion tube

G. A. Tirskii, S. V. Utyuzhnikov and **N. K. Yamaleev** — 103 — Efficient numerical method for simulation of supersonic viscous flow past a blunted body at a small angle of attack

W. W. Read and **R. E. Volker** — 115 — BIEM/QLS computer generated solutions for sloping base seepage problems

James J. Quirk — 125 — An alternative to unstructured grids for computing gas dynamic flows around arbitrarily complex two-dimensional bodies

Sheng-Tao Yu, Bonnie J. McBride, Kwang-Chung Hsieh and **Jian-Shun Shuen** — 143 — A chemical equilibrium method for hypersonic flow simulations

F. M. Wang, Y. T. Chew, B. C. Khoo and **K. S. Yeo** — 157 — Computation of turbulent flow in a square duct: aspects of the secondary flow and its origins

P. Tattersall and **J. McGuirk** — 177 — Evaluation of numerical diffusion effects in viscous flow calculations

Mounir Ibrahim and **Waqar Hashim** — 211 — Oscillating flow in channels with a sudden change in cross section

Erik B. Hansen and **Mark A. Kelmanson** — 225 — An integral equation justification of the boundary conditions of the driven-cavity problem

I *Software Survey Section*
PARAGRID

IV *Announcement*

NUMBER 2

H. Tokunaga, T. Tanaka, K. Ichinose and **N. Satofuka** 241 Numerical solutions of incompressible flows in multiply connected domains by the vorticity–stream function formulation

M. R. Kennedy, C. Pozrikidis and **R. Skalak** 251 Motion and deformation of liquid drops, and the rheology of dilute emulsions in simple shear flow

S. J. D. D'Alessio and **S. C. R. Dennis** 279 A vorticity model for viscous flow past a cylinder

I. F. Muzafarov, G. A. Tirskii, S. V. Utyuzhnikov and **N. K. Yamaleev** 295 Numerical simulation of the flow over a body flying through a thermal in a stratified atmosphere

M. Bottoni 305 A variant of the ADI method for two-phase flow calculations

Mark J. Lutton and **Philip S. Beran** 323 Hopf bifurcation in viscous, low-speed flows about an airfoil with structural coupling

R. I. Issa and **P. J. Oliveira** 347 Numerical prediction of phase separation in two-phase flow through T-junctions

Cherng-Yeu Shen and **Helen L. Reed** 373 Application of a solution-adaptive method to fluid flow: line and arclength approach

William J. Rider 397 A review of approximate Riemann solvers with Godunov's method in Lagrangian coordinates

S. Wüthrich, F. Perrel, M. L. Sawley and **A. Lafon** 415 Hypersonic flow in chemical non-equilibrium: a comparison of thin-layer Navier–Stokes and coupled Euler/boundary layer computations

H. R. Tamaddon-Jahromi, P. Townsend and **M. F. Webster** 433 Unsteady viscous flow past a flat plate orthogonal to the flow

J. C. Mandal and **S. M. Deshpande** 447 Kinetic flux vector splitting for Euler equations

Technical Note
John K. Dukowicz 479 Computational efficiency of the hybrid penalty–pseudocompressibility method for incompressible flow

I *Software Survey Section*

NUMBER 3

B. Palmerio 487 An attraction–repulsion mesh adaption model for flow solution on unstructured grids

Xue-Song Bai and **Laszlo Fuchs** 507 Modelling of turbulent reacting flows past a bluff body: assessment of accuracy and efficiency

R. L. Kolar, J. J. Westerink, M. E. Cantekin and **C. A. Blain** 523 Aspects of nonlinear simulations using shallow-water models based on the wave continuity equation

Andrea Dadone and **Bernardo Fortunato** 539 Three-dimensional flow computations with shock fitting

Eva Pärt-Enander and **Björn Sjögreen** 551 Conservative and non-conservative interpolation between overlapping grids for finite volume solutions of hyperbolic problems

I *Software Survey Section*

V *Announcement*

NUMBER 4

William D. Henshaw, Heinz-Otto Kreiss and **Luis G. M. Reyna** 575 A fourth-order-accurate difference approximation for the incompressible Navier–Stokes equations

Mohamed E. Eleshaky and **Oktay Baysal** 595 Discrete aerodynamic sensitivity analysis on decomposed computational domains

William D. McQuain, Calvin J. Ribbens, C.-Y. Wang and **Layne T. Watson** 613 Steady viscous flow in a trapezoidal cavity

F. Sotiropoulos, W. J. Kim and **V. C. Patel** 627 A computational comparison of two incompressible Navier–Stokes solvers in three-dimensional laminar flows

I *Software Survey Section*

NUMBER 5

W. J. Kim and **V. C. Patel** 647 Influence of streamwise curvature on longitudinal vortices imbedded in turbulent boundary layers

V. Babu and **Seppo A. Korpela** 675 Numerical solution of the incompressible, three-dimensional Navier–Stokes equations

Moshe Rosenfeld 693 Grid refinement test of time-periodic flows over bluff bodies

Alexander Wiedermann and **Junjiro Iwamoto** 711 A multigrid TVD-type scheme for computing inviscid and viscous flows

Technical Note
H. A. Dwyer 737 A geometric interpretation of hyperbolic grid generation

749 *Erratum*

I *Software Survey Section* AEOL

NUMBER 6

N. R. Clarke and **O. R. Tutty** 751 Construction and validation of a discrete vortex method for the two-dimensional incompressible Navier–Stokes equations

Y. Tahara and **F. Stern** 785 Validation of an interactive approach for calculating ship boundary layers and wakes for nonzero Froude number

D. Lesnic, L. Elliott and **D. B. Ingham** 817 Treatment of singularities in exterior fluid domains with corners using the boundary element method

Henry H. Yang, Brian R. Seymour and **Bernie D. Shizgal** 829 A Chebyshev pseudospectral multi-domain method for steady flow past a cylinder, up to Re = 150

H.-S. Li 853 Numerical simulation of the instability of an inviscid liquid jet in a coflowing compressible airstream

I *Software Survey Section*

V *Announcements*

NUMBER 7

Chun-Tat Chan, Hin-Fatt Cheong and **N. Jothi Shankar** 881 A boundary-fitted grid model for tidal motions: orthogonal coordinates generation in 2-D embodying Singapore coastal waters

B. K. Hakizumwami 895 High Reynolds number flow past an impulsively started circular cylinder

T. C. K. Molyneaux, Long-Yuan Li and **N. Firth** 903 Numerical simulation of underwater explosions

Philip S. Beran 913 The time-asymptotic behavior of vortex breakdown in tubes

V. C. Patel and **S. E. Kim** 939 Topology of laminar flow on a spheroid at incidence

Z. Liu and **C. Liu** 955 Fourth order finite difference and multigrid methods for modeling instabilities in flat plate boundary layers—2-D and 3-D approaches

I *Software Survey Section*

NUMBER 8

F. S. Lien and **M. A. Leschziner** 983 Assessment of turbulence-transport models including non-linear RNG eddy-viscosity formulation and second-moment closure for flow over a backward-facing step

A. B. Cortes and **J. D. Miller** 1005 Numerical experiments with the lid driven cavity flow problem

G. B. Deng, J. Piquet, P. Queutey and **M. Visonneau** 1029 Incompressible flow calculations with a consistent physical interpolation finite volume approach

Alfredo Bermudez and **Mª Elena Vazquez** 1049 Upwind methods for hyperbolic conservation laws with source terms

C. Masson and **B. R. Baliga** 1073 A control-volume finite element method for dilute gas–solid particle flows

I *Software Survey Section*